



**TARIFF COMMISSION  
GOVERNMENT OF INDIA**

# **REPORT**

**ON THE**

**REDUCTION OF IMPORT DUTY  
ON META-AMINOPHENOL  
USED IN THE MANUFACTURE OF  
PARA-AMINOSALICYLIC ACID**

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सत्यमेव जयते

GOVERNMENT OF INDIA  
MINISTRY OF COMMERCE AND INDUSTRY

RESOLUTION  
(Tariffs)

New Delhi, the 14th March, 1953.

No.2(1)-T.B./52.- The Tariff Commission has submitted its Report on the Reduction of Import Duty on Meta-aminophenol used in the manufacture of Para-aminosalicylic acid. Its recommendations are as follows:-

- (1) The difference between the fair ex-works price of Para-aminosalicylic acid produced by Nivea Pharmaceuticals and the landed cost ex-duty of the imported product is Rs. 10.20 which comes to 32.56% of the c.i.f. price (Rs. 31.33). Since the present duty is 37.8%, no reduction is recommended in the duty on Meta-aminophenol.
- (2) The manufacture of Para-aminosalicylic acid from indigenous materials should be encouraged and for this purpose the producers should be given all possible assistance in securing adequate supplies of basic chemicals like Nitro-benzene and fuming Sulphuric acid. सत्यमेव जयते
- (3) A restriction of imports of Para-aminosalicylic acid for the purpose of developing the domestic industry is not considered desirable.

2. Government accept all the recommendations of the Tariff Commission and will take steps to implement recommendation No.(2) as far as possible.

L. K. JHA,

Joint Secretary to the Government of India.

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**REPORT ON THE REDUCTION OF IMPORT DUTY ON META-AMINOPHENOL  
USED IN THE MANUFACTURE OF PARA-AMINOSALICYLIC  
ACID.**

The Nivea Pharmaceuticals Ltd., Calcutta, the only firm manufacturing para-aminosalicylic acid on a large-scale Reference to in India, made an application to the Ministry the Commission. of Commerce and Industry, Government of India, on 5th October, 1951, asking for a reduction of the existing duty on imported meta-aminophenol (MAP) which was an essential raw material used in their factory for production of para-aminosalicylic acid (PAS). Both MAP and PAS are assessed to identical rates of duty, viz., a standard rate of 36 per cent. ad valorem plus 5 per cent. of the total duty and a preferential rate of 26 per cent. plus 5 per cent. of the total duty. As PAS is an essential drug in the treatment of tuberculosis, the Company contended that the import duty on MAP should be reduced so as to encourage the growth of the PAS industry in the country. This application was followed by a letter from Messrs. Gillanders Artuthnot & Co., Managing Agents of the Nivea Pharmaceuticals, dated 7th January, 1952, addressed to the Ministry of Commerce and Industry, Government of India, in which the firm drew the attention of Government to their liberal import licensing policy in respect of PAS which was affecting adversely the position of the indigenous industry. They pointed out that while their associates in U.K. were able to obtain imports of MAP from Italy by paying a duty of only 10 per cent. they themselves had to pay a much higher rate of import duty on MAP. The Company also stated that unless the duty on MAP was remitted, it would not be possible for them to continue the manufacture of PAS in India.

In pursuance of Section 11 of the Tariff Commission Act, 1951, the Ministry of Commerce and Industry in their Resolution No. 38-T(1)/52 dated 25th February, 1952, referred to the Tariff Commission for inquiry and report the claim of the industry for reduction of import duty on MAP used in the manufacture of PAS. The Resolution added that in conducting the inquiry the Commission would be guided by the principles laid down in Section 14 of the above Act (vide Appendix I).

2. (a) On 10th April, 1952, the Commission issued a press communique inviting firms, persons and associations Method of interested in this inquiry to obtain copies of inquiry. the relevant questionnaires from the Commission's office and forward their views to the Commission. A list of such bodies or persons to whom the Commission's questionnaires were issued and from whom detailed replies or memoranda were received is given in Appendix II.

(b) The Collectors of Customs in India were asked to furnish information regarding c.i.f. prices and quantities and values of imports for the last three years in respect of both MAP and PAS. Letters were also sent to the Chief Controller of Imports, New Delhi, the Director-General of Commercial Intelligence and Statistics, Calcutta, the Director, Indian Standards Institution, Delhi, the Director-General of Health Services, New Delhi, the Director of Industries, West Bengal, the Tuberculosis Adviser to the Government of India, New Delhi, and the Assistant Drugs Controller, Government of Bombay, asking for information on the various aspects of the industry. The following were also invited to forward their views to the Commission:-

- (i) Director, Department of Chemical Technology, University of Bombay, Bombay;
- (ii) Director, National Chemical Laboratory, Poona;
- (iii) Director, Central Drug Research Institute, Lucknow;
- (iv) Assistant Director, Chemotherapy, Haffkine Institute, Bombay;
- (v) Indian Chemical Manufacturers' Association, Calcutta; and

(c) Shri B.N. Das Gupta, Member, Tariff Commission, visited the factories of M/s. Nivea Pharmaceuticals Ltd., M/s. G.D.A. Chemicals Ltd., and M/s. East India Pharmaceuticals Ltd., at Calcutta on 21st August, 1952 and also discussed the various aspects of this industry with the Deputy Director of Industries (Research), West Bengal. He visited the National Chemical Laboratory at Poona on 8th September 1952 with Shri S.S. Mehta, Commission's Technical Adviser, and held discussions with the experts of the Laboratory. The Commission's Cost Accounts Officer, Shri N. Krishnan, accompanied by Shri S.S. Mehta, Technical Adviser, visited the factory of Messrs. Nivea Pharmaceuticals Ltd., Calcutta, on 9th and 10th June, 1952 to carry out cost investigation.

(d) The Commission's public inquiry was held on the 19th September, 1952, and cost discussions *in camera* with the representatives of the Nivea Pharmaceuticals Ltd., were held on 20th September, 1952. A list of persons who attended the public inquiry on 19th September, 1952 is given in Appendix III.

3. The product made by the Nivea Pharmaceuticals Ltd., is the sodium salt of PAS, the crude acid being manufactured ~~scope of the~~ as an intermediate step in the production of the ~~inquiry.~~ sodium salt. The Company is also able to market the pure acid which is sold either in the form of powder or tablet. The imported products are either in the form of free acid or sodium and calcium salts in tablets or in powders; the sodium salt is also sold in the form of injectibles. Some of the importers obtain PAS powder in bulk from abroad and convert it into tablets and re-pack it. One firm, Albert David & Co., imports its sodium salt, converts it into calcium salt and sells it. Since the indigenous industry has to face competition from imported PAS acid as well as its salts in any form and since MAP is an intermediate step in the manufacture of PAS in all these forms, the Commission is of the view that the scope of the



inquiry should be limited to the consideration of the import duty on MAP, i.e., whether remission or a reduction in the duty on MAP as claimed by the firm is necessary or desirable.

4. The production of PAS (Sodium salt) in India is of comparatively recent origin; it was taken up for the first time in India by Nivea Pharmaceuticals in History of the industry, process of manufacture and raw materials. their factory at Konnagar (West Bengal) in January, 1951. PAS as an organic compound has, however, been known for a long time, though its chemotherapeutic effect against tuberculosis was discovered as recently as 1944 by a Danish scientist, Dr. Lehmann. It was imported for the first time into India in 1946. The Nivea Pharmaceutical Co.'s factory is located on the site of D. Waldie & Co., which is also under the same managing agents, viz., M/s. Gillanders Arbuthnot & Co., Ltd. The investment in plant, machinery and buildings amounts to about Rs. 200,000 and the factory employs about 30 workers. The Company has an arrangement with the Herts Pharmaceuticals of U.K. whereby the Company utilises the process developed by Herts Pharmaceuticals and uses the name 'Paramisan' for the product.

According to the process followed by Nivea Pharmaceuticals, MAP is treated with carbon dioxide gas in the presence of potassium carbonate and calcium chloride. The product from this reaction is converted to the crude PAS free acid, which is then converted into the crude sodium salt by the addition of caustic soda. This crude sodium salt of PAS passes through a series of purification and crystallisation processes so as to yield the pure sodium salt of PAS in the form of powder which is dried and packed. A portion of the powder is converted into tablets by another firm on behalf of Nivea Pharmaceuticals.

The principal raw material of the industry, viz., MAP is obtainable from Italy, Germany, Holland and U.S.A.

The other raw materials contribute only a small proportion of the cost of production. Of these, carbon dioxide, hydrochloric acid, acetone and calcium chloride are available locally, whereas potassium carbonate, sodium hydrosulphite, activated charcoal, hyflo-supercel and caustic soda in pellet form are imported from abroad.

It may be mentioned here that there are two other companies in Calcutta, viz., G.D.A. Chemicals Ltd., and East India Pharmaceuticals Ltd., which have been manufacturing PAS by their own processes. Both these processes begin with indigenous raw materials like benzene or nitrobenzene. According to one process, benzene is converted into resorcinol and then into MAP before final conversion into PAS. Another process consists in converting nitrobenzene into MAP through sulphonation, reduction and fusion with alkali. Without separation of the MAP, the product is directly converted into PAS. Manufacturers from indigenous raw materials claim that if production is started from the basic materials it is possible to keep clear of patented methods.

5. The estimates of demand for PAS in the country furnished to the Commission by the representatives of domestic different interests varied widely ranging from demand. 40,727 kilos (1 kilo : 2.2 lbs) to 2,545,150 kilos. The latter figure supplied by the Director of Industries, West Bengal, was admittedly on the high side because it was based on the assumption that PAS would be used in the treatment of all tuberculosis patients in India. Another estimate of demand supplied by Messrs. Albert David Ltd., Calcutta, who make calcium salt from sodium salt of PAS, placed the demand at 1,268,000 kilos, which was also found to be on the high side. The remaining estimates of demand ranged between 40,000 kilos to 300,000 kilos. The Ministry of Commerce and Industry (Development Wing) estimated the demand between 81,455 and 101,818 kilos. Nivea Pharmaceuticals Ltd., Calcutta, have furnished an estimate of 61,091 kilos. Two importers, viz., Gillanders Arbuthnot & Co. Ltd.,

Calcutta, and East Asiatic Co. (India) Ltd., Bombay, estimated the requirements for PAS in India from 40,727 to 50,909 kilos and from 101,818 to 178,150 kilos respectively. The District Medical Officer, Mandi (Himachal Pradesh), estimated the demand at 93,182 kilos and S.B. Dey Sanatorium, Kurseong, at 60,000 to 100,000 kilos. The Neo-Pharma Ltd., Bombay, who make tablets, have estimated the demand at 300,000 kilos for 1952, at 250,000 kilos for 1953 and 100,000 kilos for 1954.

An important question to be considered in connection with the estimation of future demand for PAS is the possibility of its being displaced by Isonicotinic Acid Hydrazide. This matter was discussed at the public inquiry where it was pointed out that while the price of Isonicotinic Acid Hydrazide per kilogram is much higher than that of PAS, the quantity of Isonicotinic Acid Hydrazide used in the treatment of tuberculosis is much smaller. The consensus of opinion was that Isonicotinic Acid Hydrazide was not likely to replace PAS completely in the near future. On the contrary, the use of PAS is likely to increase in future. It is also known that PAS would continue to be used in combination with Streptomycin and Isonicotinic Acid Hydrazide. We, therefore, consider that in estimating the demand for PAS in India, the possibility of its being replaced by Isonicotinic Acid Hydrazide in the near future need not be taken into account.

During the discussion at the public inquiry, it was stated that the demand for PAS would depend not only on the number of patients receiving treatment by PAS but also on the price at which PAS was available. Within limits the demand for PAS would vary with the price at which it is imported and sold in the country. On the basis of 1951 imports and indigenous production the estimate of 60 tons is fairly reasonable. This figure works out to a reasonable percentage of what would have been the total demand in the country if all the tuberculosis patients were to be supplied

with 1 kilo each of the drug. If, however, the price of PAS is somewhat lower, the demand would considerably increase. It was agreed at the public inquiry that the estimate of demand for PAS might be placed at between 90,000 and 100,000 kilos.

6. The installed capacity of Nivea Pharmaceuticals Ltd., to manufacture PAS from MAP is stated to be 2,036 kilos per month or about 24,432 kilos (24 tons) per annum. The company has already obtained equipment for increasing its capacity by 25 per cent. but has not installed it because it has not been able to utilise even its existing equipment to the full capacity. It started production in March, 1951 and its actual production since that date is given below:

Year	Production (in Kilos)
1951-52 (April-March)	9,986
1952 (April-June)	2,187

The Company has stopped production since July, 1952, owing to large accumulation of stocks.

Besides Nivea Pharmaceuticals, there are two other units which are manufacturing or propose to manufacture PAS from benzene or nitro-benzene. M/s. G.D.A. Chemicals have a rated capacity of 2,240 kilos and East India Pharmaceuticals have a capacity of 2,030 kilos. Neither of these two units is in regular production either of MAP or PAS. The actual production of G.D.A. Chemicals since it started production in April, 1950, has been only 1,000 lbs. The East India Pharmaceuticals have not started production as yet, though they have installed the necessary machinery. The actual production of these two firms has been a very small fraction of the demand. But it has some potentiality for expansion as the above two firms do not depend on any imported machinery and manufacture from indigenous raw materials. These two units can produce 4,000 kilos to 5,000 kilos annually in the near future.

The Commission, therefore, finds that though the present total production in India is only about 5,000 kilos in 1952 (against approximately 8,000 kilos in 1951) yet at the full installed capacity of Nivea Pharmaceuticals and others the indigenous production will be about 30,000 kilos.

7. The representatives of consumers who expressed opinion about the quality of indigenous PAS in their memoranda or letters to the Commission generally agreed that the quality of indigenous PAS compares favourably with that of the imported product. During the discussion at the public inquiry also, there was a consensus of opinion that the quality was good and upto the standard. The indigenous industry was following till recently the Danish Standard Specifications since these were the only standards available. In June, 1952, the British Standard Specifications were published in respect of PAS and the indigenous manufacturers are confident of their ability to manufacture the product according to the requirements of these specifications. The Nivea Pharmaceuticals Ltd., have at present an arrangement with the Herts Pharmaceuticals Ltd. of U.K. for frequent testing of their products so as to maintain the standard quality.

8. Statistics of the imports of PAS and MAP are not recorded separately at present in the Accounts relating to the Foreign Sea and Air-borne Trade and Navigation of India. We have obtained some data relating to imports of PAS from the principal importers for the years 1949-50, 1950-51 and 1951-52, but these being incomplete, cannot be used. The Director-General of Health Services in his memorandum furnished to the Commission has stated that the quantity of PAS imported in 1950-51 was 46,568 kilos. The figures furnished by the Collectors of Customs, Calcutta and Madras give only values of annual imports of PAS during the years 1948-49, 1949-50, 1950-51 and 1951-52 as shown in the statement below:

*Value of imports of PAS*  
(in rupees)

1948-49	28,837
1949-50	85,643
1950-51	832,991
1951-52	711,186

The import control policy for PAS and MAP has not undergone any marked changes since the beginning of 1950. During January/June 1950, PAS was included in the list of essential drugs and medicines and licences were issued on quota basis from soft currency areas while imports from dollar areas were not allowed. In the middle of this licensing period, however, PAS was placed on free licensing list and licences were issued freely against the January/June 1950 period. During the next three licensing periods viz., July/December 1950, January/June 1951 and July/December 1951, imports of PAS from soft currency areas were freely licensed while from dollar areas, they were not allowed at all. During the last half year, viz., January/June 1952, PAS was removed from the free licensing list and was included in the list of essential drugs and medicines for which licences were issued on 75 per cent. and 100 per cent. quota basis from dollar and soft currency areas respectively. As regards MAP, licences were issued to actual users during all these periods on the recommendations of the Directors of Industries of States. The licensing policy for the current half year, viz., July/December 1952, has not as yet been announced in respect of PAS and its salts.

At the public inquiry the representatives of the Nivea Pharmaceuticals Ltd., made the suggestion that imports of MAP should be placed on Open General Licence because at present considerable delay is caused in taking out import licences. He, however, admitted that otherwise the present policy was not working prejudicially to the importers of MAP.

The Commission, therefore, felt that Government may in future adopt means by which the issuing of licences may be done more expeditiously than heretofore.

The representatives of the Nivea Pharmaceuticals, G.D.A. Chemicals and East India Pharmaceuticals were strongly in favour of restricting the imports of PAS and they pointed out that unless this was done, the indigenous industry would not fully develop. The Commission pointed out and it was generally agreed that in the interest of the consumers of such a drug, the price should be as low as possible and that restriction of the imports of PAS for protecting the domestic industry would be undesirable.

9. Both PAS acid and MAP are assessable to duty under the Indian Customs Tariff Schedule item No. 28 and are Existing rates subject to a standard rate of duty of 37.8 of customs per cent. *ad valorem* and a preferential rate duty. of duty of 27.3 per cent. *ad valorem* for U.K. and British Colonies (both inclusive of surcharge). The relevant extract from the I.C.T. Schedule (36th issue) is reproduced below:-

Item No.	Name of article	Nature of duty	Standard rate of duty	Preferential rate of duty if the article is the produce or manufacture of			Duration of protective rates of duty
				The U.K.	A British Colony	Burma	
28	Chemicals Drugs and Medicines all sorts not other- wise spe- cified.*	Preferential revenue	Rate of duty actually charged at the time for such products of the United Kingdom or British Colonial origin plus 10 per cent <i>ad valorem</i> plus 5 per cent of the total duty.	26 per cent <i>ad valorem</i> plus 5 per cent of the total duty.	26 per cent <i>ad valorem</i> plus 5 per cent of the total duty.	10½ per cent <i>ad valorem</i> .	

\* These are GATT items.

10. (a) C.i.f. prices and landed costs of PAS (acid), sodium salt of PAS and calcium salt of PAS in the form of powder and tablets are given in the statement in Appendix IV. It will be noticed from the statement that the cost of tablets of PAS and its sodium salt which was as high as Rs. 231/- per kilo in 1950 came down to about Rs. 140/- per kilo in the first half of 1951, to about Rs. 90/- per kilo in the second half of 1951 and to Rs. 30/- to Rs. 50/- per kilo in 1952. The principal reason for decline in cost of imported PAS is the competition from foreign brands since this drug has come into the market. The prices of MAP, as imported into India, are given below:-

January 1951	Italian	15/0d.	per lb. of f.o.b. Genoa.
June 1951	"	12/4d.	-do-
February 1952	Dutch	10/0d.	per lb. c.i.f. Calcutta.
April 1952	"	8/6d	-do-

From the above, it is apparent that the price of MAP has been gradually declining. It was also pointed out by the importers at the public inquiry that the price had been more or less steady during the last few months.

(b) PAS is imported in various forms such as free acid, its sodium salt and its calcium salt. Since the indigenous product is the sodium salt of PAS in powder form, the comparison has to be made with a similar product imported from abroad. During the public inquiry various figures of c.i.f. prices were quoted for imports from Italy, Holland, Denmark and Sweden. We have, however, taken for comparison the c.i.f. price of 42sh. 6d. (Rs. 28.33) furnished by the Collector of Customs, Bombay, for imports of sodium salt of PAS obtained in bulk from Sweden. Since this material is imported in bulk, an adjustment of Rs. 3/- has been made to cover expenses of packing in lots of 250 gms which is the packing most commonly adopted by Nivea Pharmaceuticals. The adjusted c.i.f. price, therefore, works out to Rs. 31.33.



11. The Commission's Cost Accounts Officer examined the cost of production of re-crystallised sodium salt of PAS at the Nivea Pharmaceuticals Ltd., Calcutta, for the period February-April, 1952. As the Company desired that its details of cost should be kept confidential, we are forwarding such details to Government in a separate confidential enclosure to this Report. The cost of production was worked out in four stages, viz., (a) PAS free acid, (b) Crude Sodium Salt, (c) Re-crystallised Sodium Salt, and (d) Recovery of free acid. During the period February-April, 1952, the Company manufactured 2,783 kilos of sodium salt but working at less than 50 per cent. of their capacity. We have, however, adopted the basis of 25,000 kilos per annum and certain salient points regarding cost of production are given below:-

(i) *Raw materials*:- If the average rate of Rs. 26/- per kilo of MAP is taken into account, which was the price during the period mentioned above, then the total cost including power and fuel, labour, repairs, consumable stores, establishment, depreciation and other overheads would come to about Rs. 55/- per kilo. As such a small production can, in no circumstances, give any correct position of the Company's inherent capacity to produce economically, the Commission discussed this matter with the representatives of the Nivea Pharmaceuticals and recomputed the future costs on the basis of a production of 25,000 kilos which the Commission thinks should be the normal production for this unit. The overall cost on this basis for 250 gms of PAS powder works out to Rs. 9.18 taking the price of MAP as Rs. 17.97 per kilo.

(ii) *Power and Fuel*:- Provision for this item has been made on the basis of the actual consumption during the period February-April, 1952.

(iii) *Depreciation*:- Depreciation has been allowed at the income-tax rates for such machinery as would be actually used as well as on the buildings.

(iv) *Other overheads*:- The actual expenditure on other overheads during the period February-April, 1952, came to Rs. 8.35 per kilo. In our estimate for the future, we have allowed other overheads on an estimated production of 25,000 kilos, which work out to Rs. 3.32 per kilo.

(v) *Royalty*:- The Company pointed out that on account of their using a special patented process they will have to pay a royalty to Herts, London. But the Commission thought it to be unnecessary to include this item. If at any future time such a charge becomes at all necessary it will be quite a nominal amount. Therefore, this has not been taken into account.

Thus if we consider PAS powder at Rs. 9.18 as mentioned above and add to it packing charges Re. 0.91, interest on working capital Re. 0.11 and return at  $2\frac{1}{2}\%$  on the cost of production Re. 0.26, then the fair ex-works price comes to Rs. 10.46 per 250 gms. which is equal to Rs. 41.84 per kilo. Hence the Commission came to the conclusion that if economy measures are adopted the fair ex-works price of indigenous PAS would be Rs. 41.84. The only ground on which this figure can vary is the basis of output. Where the installed capacity of Nivea Pharmaceuticals is about 25,000 kilos with an extra capacity to expand, there is no reason why the production should not be carried to the maximum not only to meet the domestic demand but also to materially reduce the cost of production so that under all conditions it can compete with the imported product. From the foregoing figures it is evident that the cost of production of Nivea Pharmaceuticals can be kept slightly lower than the price of imported PAS if their factory is thoroughly rationalised.

We were unable to get details of cost from G.D.A. Chemicals and East India Pharmaceuticals who could only give us their estimates of cost. The Commission, therefore, could not take these figures into account.

On the basis of actual production of 2,783 kilos during February-April 1952, the cost of production works out to

Rs. 54.97 per kilo and the fair ex-works price to Rs. 60.72 per kilo or Rs. 15.18 per tin of 250 gms. The fair ex-works price estimated by us for future on the basis of a production of 25,000 kilos per year works out to Rs. 10.46 per tin of 250 gms. The following statement gives the comparison in the salient details:-

	February-April 1952	Estimate for future
	Rs. per kilo	Rs. per kilo
Total material cost	36.15	28.07
Conversion charges	18.82	8.66
Cost of production including packing.	58.60	40.36
Interest on working capital and return on block.	2.12	1.48
Fair ex-works price	60.72	41.84

From the above it is clear that the figures relating to actual production are not a reasonable guide for working out the fair ex-works price.

12. On the basis of the adjusted c.i.f. price of Rs. 31.33 for imports of sodium salt of PAS obtained in comparison of fair bulk from Sweden, the landed cost, with ex-works price of duty, of PAS with the adjustment necessitated by equivalent packing, works out to Rs. 43.48 which is slightly higher than the fair ex-works price of Rs. 41.84 as given below:-

(1) C.i.f. Price	Rs. 31.33
(2) Landing charges at 1%	" 0.31
(3) Duty @ 37.8%	" 11.84
(4) Landed cost with duty	" 43.48
(5) Landed cost ex-duty	" 31.64
(6) Fair ex-works price	" 41.84
(7) Difference between fair ex-works price and the landed cost ex-duty (6 - 5)	" 10.20
(8) Percentage of (7) to (1)	32.56

It will be observed that the difference between the fair ex-works price of Nivea's product and the landed cost ex-duty of the imported product is Rs. 10.20 which comes to 32.56% of c.i.f. price (Rs. 31.33). The present duty on PAS being 37.8% the case of Nivea Pharmaceuticals for any reduction in the duty on MAP is untenable.

13. The Nivea Pharmaceuticals' application for reduction in the import duty on MAP is the subject of this investigation. The Company makes PAS from MAP imported mostly from Italy and they have invested about two lakhs of rupees which no other firm has yet done for the sake of producing this important drug in India. They claim that they are the pioneers in the field of manufacture of PAS in India. This claim was strongly opposed at the public inquiry by not only G.D.A. Chemicals and East India Pharmaceuticals but also by some experts from the Government side as well as by experts from the public. The latter contended that until PAS could be made from raw materials available in this country, it should not be called an 'industry' since the production from an intermediate like MAP was hardly of any industrial significance in view of the fact that MAP was the penultimate stage of the entire process. They further contended that conversion from MAP to PAS was rather an easy step compared with the stages prior to this. The Nivea Pharmaceuticals pointed out that as a firm essentially engaged upon the manufacture of pharmaceuticals, the production of PAS from MAP would be considered to be quite sound as is being carried on in European countries also. The contention of the two firms in Calcutta and some expert chemists belonging to Haffkine Institute, Bombay, and of the Managing Director of Cipla was that such a venture of Nivea Pharmaceuticals could not be considered as an industry at all. They also contended that the PAS industry could be developed in India from indigenous raw materials and hence must be established in India along with other more important and much

larger chemical industries. They felt that by taking such a step only, the establishment of useful drug industries could be stabilised and further research work on them could be encouraged. They further emphasized that unless simultaneous development of various basic chemical industries was taken in hand without delay, nothing could break the vicious circle where one industry depends upon another and the latter can only be developed provided other industries can absorb and profitably utilise their product. In favour of importing MAP the Nivea Pharmaceuticals further advanced the argument that the raw materials like Benzene and Fuming Sulphuric Acid were not available in India in the required quantity and even if they were available, it was very doubtful whether the production from raw materials would be economically sound in the present state. Reviewing the entire position of the Nivea Company, it must, however, be admitted that this unit is producing in India some appreciable quantity of PAS (while others are doing a very small fraction) and that Nivea Company is able to produce 25,000 kilos if they can increase the demand by reducing their cost of production. The attention of the Commission was drawn to the fact that the price of MAP had gone down very rapidly in the recent past and Nivea Company thinks that if at this stage remission or some reduction is allowed in the duty, they would be able to reduce this cost still further and would be able to compete in the Indian market with their finished product PAS. The two firms, G.D.A. Chemicals and the East India Pharmaceuticals were, however, alarmed at the declining trend of MAP prices and they pointed out that if the MAP price went down still further, it would indicate a danger for them, for Nivea's cost in that case would go down so much that they (i.e., those who will produce PAS from indigenous raw materials) would not be able to produce PAS at a competitive price. They frankly stated that if the duty on MAP was lowered or MAP price went down still further, Nivea Company would probably be able to give a fair competition to the imported PAS but the danger in that case would

be that even they themselves might be tempted to purchase such cheap imported MAP giving up their own long processes starting with Nitro-Benzene and thus giving up the development of the industry in India from the basic raw materials. It was on this ground that these two firms opposed the reduction of the duty on MAP.

Taking into account all sides of the question, the Nivea's contentions, the objections thereto and the cost-analysis in particular, the Commission found that the claim of Nivea Pharmaceuticals was not justified. The Commission felt, however, that though PAS is a comparatively small industry, yet in view of its importance and despite the discovery of a new drug called Isonicotinic Acid Hydrazide, the indigenous manufacture of PAS deserved encouragement. This is desirable especially from the broader stand-point of creating technical skill and confidence in our young scientists for carrying out further research in the production of chemicals. In any scheme of industrial development in India such skill, knowledge and confidence will be of incalculable benefit for pioneering work.

The manufacture of PAS from indigenous materials should be encouraged and for this purpose the producers should be given all possible assistance in securing adequate supplies of basic chemicals like Nitro-benzene and Fuming Sulphuric Acid.

14. Our conclusions and recommendations may be summarised as under:-

- |  |   |
|--|---|
| Summary of<br>conclusions<br>and recommen-<br>dations. | (i) The domestic demand is estimated at 80,000 to 100,000 kilos of PAS per annum (Paragraph 5).   |
|  | (ii) Although the present total production in India is only about 5,000 kilos in 1952 (against approximately 8,000 kilos in 1951) but at the full installed capacity of Nivea Pharmaceuticals, the production will be 25,000 kilos per annum. The total capacity of the industry is estimated at 30,000 kilos per year (Paragraph 6). |
|  |   |

(iii) The quality of the indigenous PAS is upto the required standard ( Paragraph 7 ).

(iv) A restriction of imports of PAS for the purpose of developing the domestic industry is not considered desirable (Paragraph 8).

(v) The difference between the fair ex-works price of PAS produced by the Nivea Pharmaceuticals and the landed cost ex-duty of the imported product is Rs. 10.20 which comes to 32.56% of the c.i.f. price (Rs. 31.33). Since the present duty is 37.8%, no reduction is recommended in the duty on MAP (Paragraph 12).

(vi) The manufacture of PAS from indigenous materials should be encouraged and for this purpose the producers should be given all possible assistance in securing adequate supplies of basic chemicals like Nitro-benzene and Fuming Sulphuric Acid (Paragraph 13).

15. We wish to express our thanks to the representatives of producers, importers and consumers who furnished us with valuable information and tendered evidence before us. Our thanks are also due to Shri N. Srinivasan of the Development Wing, Ministry of Commerce and Industry, Shri M.A. Padval, Assistant Drugs Controller to the Government of India, Dr. K. Ganapathi, Assistant Director, Haffkine Institute, Bombay, Shri U. Chatterji, Deputy Director of Industries, Government of West Bengal, Shri. B.V. Patel, Drugs Controller for the State of Bombay and Shri M.L. Khorana of the Department of Chemical Technology, University of Bombay for their assistance in connection with this inquiry.

B.V. Narayanaswamy,  
Member.

B.N. Adarkar,  
Member.

B.N. Das Gupta,  
Member.

D.K. Malhotra,  
Secretary.  
Bombay,

Dated 31st December, 1952.

APPENDIX I  
(Vide paragraph 1)  
GOVERNMENT OF INDIA  
MINISTRY OF COMMERCE & INDUSTRY

*New Delhi, the 25th February, 1952.*

RESOLUTION

No. 38-T(1)/52.- In pursuance of Section 11 of the Tariff Commission Act, 1951 (L of 1951), the Central Government hereby refers to the Tariff Commission for inquiry and report an application received for reduction of import duty on meta-aminophenol used in the manufacture of para-amino-salicylic acid.

2. In conducting the inquiry the Commission will be guided by the principles laid down in Section 14 of the Act, referred to above.

3. Firms or persons interested in this inquiry or in industries dependent on the use of this article, who desire that their views should be considered by the Tariff Commission should address their representations to the Secretary to the Commission, Contractor Building, Nicol Road, Ballard Estate, Bombay-1.

Sd./- K.N. Kaul,  
*Joint Secretary to the Government of India,*



## APPENDIX II

[Vide paragraph 2(a)]

*List of firms and persons to whom the Commission's questionnaires were issued and from whom detailed replies or memoranda were received.*

\* Those who replied in detail.

@ Those who replied stating that they were not dealing in the product or were not interested.

### A. PRODUCERS :

- \* 1. Nivea Pharmaceuticals Ltd.,  
Clive Buildings,  
Netaji Subhas Road, Calcutta -1.
- @ 2. G.D.A. Chemicals Ltd.,  
44, Badridas Temple Street, Calcutta - 4.
- 3. East Asiatic Company (India) Ltd.,  
P.O. Box No. 639, Wavell House,  
Graham Road, Ballard Estate, Bombay - 1.
- 4. East India Pharmaceutical Works Ltd.,  
Basusree Buildings (3rd Floor),  
11/1/4, Russa Road, Calcutta-23.

### B. IMPORTERS:

- \* 1. Cilag - Hind Limited,  
15, Cawasji Patel Street,  
Mehtar House, Bombay - 1.
- \* 2. East Asiatic Company (India) Ltd.,  
P.O. Box No. 639, Wavell House,  
Graham Road, Ballard Estate, Bombay - 1.
- \* 3. Biddle Sawyer & Company (India) Limited,  
25, Dalal Street, Fort, Bombay - 1.
- \* 4. "Wander" Pharmaceutical Department,  
Grahams Trading Co. (India) Limited,  
16, Bank Street, Bombay - 1.
- \* 5. Ciba Pharma Limited,  
Esplanade House, Waudby Road,  
Bombay.

IMPORTERS (Contd.)

6. Neo - Pharma Limited,  
1/110, Haines Road, Worli, Bombay - 19.
- @ 7. Shankar Medical Stores Ltd.,  
55-110, Canning Street, Mehta Buildings,  
Calcutta.
- \* 8. Gillanders Arbuthnot & Co. Ltd.,  
(Sole Agents for Herts Pharmaceuticals Ltd., U.K.)  
Clive Buildings, Netaji Subhas Road,  
Calcutta - 1.
- \* 9. Chowgule & Co. (Hind) Ltd.,  
Lentin Chambers, Dalal Street, Fort, Bombay - 1.
10. Fedco Ltd.,  
Mohamedally Mansion, 241, Princess Street,  
Bombay - 2.
- @ 11. Volkart Brothers,  
P.O. Box 199, Graham Road, Ballard Estate,  
Bombay - 1.
- @ 12. Philips Electrical Co. (India) Ltd.,  
"Philips House", 7, Justice Chandra Madhab Road,  
Calcutta - 20.
13. Associated Importers,  
55/45, Canning Street, Calcutta.
- @ 14. Bhatnagars & Company Limited,  
P.O. Box 1421, Daryaganj, Delhi.
15. Fairdeal Corporation,  
Lakshmi Building, Sir P.M. Road,  
Fort, Bombay - 1.
- @ 16. May & Baker (India) Ltd.,  
Karimjee House, Sir, P.M. Road,  
Bombay - 1.
17. Indo-Pharma Pharmaceutical Works,  
Shanti Bhuvan, Kohinoor Road,  
Dadar, Bombay - 14.
18. Dadha & Co.,  
Nyniappa Naick Street, Madras.
19. Amarchand Sobachand,  
Nyniappa Naick Street, Madras.
20. Shah Prabudas Gulabchand,  
Mulchand Mansion, Princess Street,  
Bombay - 2.
21. Bharat Medical Stores,  
Katopore Bazar,  
Broach, Western Railway.

IMPORTERS (Contd.)

22. F. Bock & Co.,  
Post Box No. 1288,  
Shale Building, Bank Street, Bombay - 1.
23. J.J. Shah & Sons,  
354, Kalbadevi Road, Bombay -2.
24. T.M. Thakore & Co.,  
Merchants & Agents,  
43, Churchgate Street, Fort, Bombay - 1.
25. B. Jayantilal & Co.,  
Chemists and Perfumers,  
15, Mangaldas Road, Bombay - 2.
26. N. Chimanlal & Co.,  
Shroff Mansion,  
Princess Street, Bombay - 2.

C. CONSUMERS :

- \* 1. Chemical, Industrial & Pharmaceutical  
Laboratories Limited,  
289, Bellasis Road, Byculla, Bombay.
- @ 2. Zandu Pharmaceutical Works Ltd.,  
Gokhale Road, South, P.O. Box No. 5513,  
Bombay 28.
- \* 3. Albert David Limited,  
15, Chittaranjan Avenue, Calcutta - 13.
- \* 4. Neo-Pharma Limited,  
1/110, Haines Road,  
Worli, Bombay 18.
- \* 5. Kumudsankar Ray Tuberculosis Hospital,  
Jadabpur, Calcutta-32.
- \* 6. S.B. Dey Sanatorium,  
Kurseong, Darjeeling.
7. Itki Sanatorium,  
Itki (Bihar).
8. Union Mission Tuberculosis Sanatorium,  
Arogyavaram, Near Madanpalle,  
Chittoor Dist., South India.
9. Government Tuberculosis Institute,  
Madras.
10. Government Tuberculosis Hospital,  
Madras.
11. Government Tuberculosis Sanatorium,  
Tambaram, Madras.

## CONSUMERS (Contd.)

- \* 12. Government Headquarters Hospital,  
Coimbatore, South India.
- 13. Government Headquarters Hospital,  
Calicut, South India.
- 14. Government Headquarters Hospital,  
Tanjore, South India.
- 15. Government Headquarters Hospital,  
Tiruchirapalli, South India.
- \* 16. Erskine Hospital,  
Madurai, South India.
- 17. Government King George Hospital,  
Vishakhapatnam, South India.
- 18. Coimbatore District Jubilee Tuberculosis  
Sanatorium, Perundurai, Coimbatore District,  
South India.
- 19. Visrantipuram Sanatorium,  
Rajahmundry, South India.
- 20. Government General Hospital,  
Madras.
- \* 21. Santosham Memorial Tuberculosis Sanatorium,  
Tambaram, Madras.
- 22. Government Wellesley Tuberculosis Sanatorium,  
Bellary, South India.
- \* 23. Rajaji Tuberculosis Sanatorium,  
Tiruchirapalli, South India.
- \* 24. Bel-Air Sanatorium,  
Dalkeith, Panchgani (via Poona).
- 25. Hillside Sanatorium,  
Vengulila.
- \* 26. Wanless Tuberculosis Sanatorium,  
Wanlesswadi.
- \* 27. Group of T.B. Hospitals,  
Jerbai Wadia Road,  
Opp. Christian Cemetery, Sewri, Bombay-15.
- 28. Salvation Army Tuberculosis Hospital,  
Anand.
- 29. Talegaon General Hospital & Convalescent Home,  
Talegaon.
- \* 30. Shree Padmavati Sanatorium,  
Baroda.
- @ 31. Lady Linlithgow Sanatorium,  
Kasauli.

## CONSUMERS (Contd.)

- 32. Lady Irwin Sanatorium,  
Jubar.
- 33. King Edward Sanatorium,  
Dharampore.
- \* 34. Victoria Jubilee Hospital,  
Amritsar.
- \* 35. R.B. Sir Gujzarmal Kesradevi Tuberculosis  
Sanatorium, Amritsar.
- 36. King Edward VII Sanatorium,  
Bhowali.
- 37. King George Medical College Hospital,  
Lucknow.
- 38. Patna Medical College Hospital,  
Patna.
- 39. Tuberculosis Clinic,  
Nagpur.
- 40. Tuberculosis Clinic,  
Jubbulpore.
- 41. Tuberculosis Sanatorium,  
Pendra Road.
- \* 42. Reid Provincial Chest Hospital,  
Shillong.
- \* 43. Silver Jubilee Tuberculosis Hospital,  
Kingsway, Delhi-9
- 44. Tuberculosis clinic  
Queens Road, Delhi.
- 45. New Delhi Tuberculosis Clinic,  
Irwin Hospital, New Delhi.
- 46. Rama Krishna Mission Free Tuberculosis Clinic,  
Karol Bagh, Delhi.
- 47. Madar Union Sanatorium,  
Madar.
- 48. Government T.B. Clinic,  
Mandi (Himachal Pradesh).
- 49. Government T.B. Clinic,  
Mahasu, Mashobra (Himachal Pradesh).

APPENDIX III  
[Vide paragraph 2 (d)]

*List of persons who attended the public inquiry on 19th  
September, 1952 and gave evidence before the Commission.*

**PRODUCERS:**

- |                     |              |   |
|---------------------|--------------|---|
| 1. Mr. G.G. Bates   | Representing | Nivea Pharmaceuti-<br>cals Ltd., Clive<br>Buildings, Netaji<br>Subhas Road,<br>Calcutta- 1. |
| 2. Dr. N.C. Ganguly |              | G.D.A. Chemicals<br>Ltd., 11, Badridas<br>Temple Street,<br>Calcutta - 4.                   |
| 3. Shri N. Sen }    |              | East India Pharma-<br>ceutical Works Ltd.,  |
| 4. Shri K. De }     |              | Basusree Buildings,<br>11/1/4, Russa Road,<br>Calcutta - 25.                                |



**IMPORTERS:**

- |                            |   |
|----------------------------|---|
| 1. Mr. L. Toft             | East Asiatic Company<br>(India) Ltd.,<br>P.O. Box No. 639,<br>"Wavell House",<br>Graham Road,<br>Ballard Estate,<br>Bombay - 1. |
| 2. Dr. N.M. Shah           | Cilag-Hind Limited,<br>15, Cawasji Patel<br>Street, Meher House,<br>Bombay - 1.   |
| 3. Shri K. A. Ramachandran | "Wander" Pharmaceutical<br>Department, Grahams<br>Trading Co. (India)<br>Limited, 16, Bank<br>Street, Bombay -1.                |
| 4. Dr. P.N. Sarangdhar     | Chowgule & Co. (Hind) Ltd.,<br>Lentin Chambers,<br>Dalal Street, Fort,<br>Bombay - 1.   |
| 5. Shri V.N.               | Ciba Pharma Limited,<br>Esplanade House,<br>Waudby Road, Bombay.  |

**CONSUMERS:**

Dr. K.A. Hamid Representing Indian Chemical Manufacturers' Association,  
23-B, Netaji Subhas Road,  
Calcutta;  
and  
Chemical, Industrial & Pharmaceutical Laboratories Limited, 289, Bellasis Road, Byculla, Bombay - 8.

**GOVERNMENT OFFICIALS:**

1. Shri N. Srinivasan,  
Development Wing (Chemicals),  
Ministry of Commerce & Industry,  
Shahjahan Road, New Delhi.
2. Shri V. A. Padval,  
Assistant Drugs Controller to the  
Government of India,  
New Customs House,  
Ballard Estate, Bombay.
3. Shri C.D.R. Chari,  
Appraiser,  
Office of the Collector of Customs,  
Bombay.
4. Dr. K. Ganapathi,  
Assistant Director,  
Department of Chemotherapy,  
Haffkine Institute, Bombay.
5. Shri U. Chatterji,  
Deputy Director of Industries (Research),  
Government of West Bengal,  
7, Council House Street, Calcutta-1.
6. Shri B.V. Patel,  
Drugs Controller for the State of Bombay,  
Manekjee Wadia Building,  
127, Mahatma Gandhi Road, Bombay-1.

**OTHERS:**

Shri M.L. Khorana Representing Department of Chemical Technology,  
Matunga, Bombay-19.

APPENDIX IV  
[Vide. paragraph 10 (a)]

STATEMENT SHOWING THE C.I.F. PRICES, CUSTOMS DUTIES, CLEARING CHARGES, LANDED COSTS AND SELLING PRICES OF 1 K. gm. OF (A) PARA-AMINOSALICYLIC ACID (POWDER AND TABLETS), (B) SODIUM PARA-AMINOSALICYLATE (POWDER AND TABLETS) AND (C) CALCIUM PARA-AMINOSALICYLATE (POWDER AND TABLETS)

Sl. No.	Source of information	Origin of Import	Date of Import	Type and specification	C.I.F. price	Customs duty	Clearing charges	Landed cost	Selling price	Remarks
1	2	3	4	5	6	7	8	9	10	11

Rs. As. Ps. Rs. As. Ps. Rs. As. Ps. Rs. As. Ps. Rs. As. Ps.

4. PARA-AMINOSALICYLIC ACID

(i) Powder

1. Cilag-Rind Ltd., Switzer- 1-11-1951 Powder 40-15-11 15- 7-11 0- 4- 2 50-12- 0 -  
land. (37.8%)
2. Collector of France 15- 4-1952 " 31- 0- 0 11-12- 0 - - -  
Customs, Madras. (37.8%)
3. Collector of U.K. April, 1952 - 25- 5-10 - - -  
Customs, Calcutta.
4. Collector of Sweden 1-9-1952 Bulk 28- 5- 4 - - -  
Customs, Bombay. packing

(ii) Tablets

1. The East Asiatic Denmark 10-1-1952 Entero- 41-10- 0 15-12- 0 0- 6- 0 65- 0- 0 75- 0- 0  
Co. (India) Ltd., coated to  
Bombay. granules containing 90- 0- 0  
70% P.A.S. per kilogram.
2. Collector of France April, 1952 Entero- 40- 8- 2 18-10- 8 - - -  
Customs, Calcutta. coated  
0.5 gm. tablets.

-do-

This is the latest c.i.f. price which they have not availed of.

The c.i.f. figure was given for 3,25,000 tablets and has been worked out for 1 kilogram.



## B. SODIUM PARA-AMINOSALICYLATE

(1) Powder

1	2	3	4	5	6	7	8	9	10	11
1.	Biddle, Sawyer & Co. (India) Ltd., Bombay.	Italy	May, 1962	-	26-0-0	9-12-0 (37.5%)	0-4-0	36-0-0	40-0-0	Sold in 100 gm. tins. Cost of tins, packing material and labour approximately Re.-/8/- per tin, i.e., Rs. 5-2-0 per kilogram. Profit therefore is Re.-/14/- per kilogram.
2.	Oillanders Arbutnot & Co. Ltd., Calcutta (Sole Agents for Herts Pharmaceuticals Ltd., U.K.), Chowgule & Co. (Hind) Ltd., Bombay.	U.K.	5-9-1961	MS 2 X Powder in containers of 250 gm.	64-12-4	17-10-11 (27.3%)	0-9-0	85-0-5	120-0-0	The c.i.f. figure was given for 250 gm. and has been worked out for 1 kilogram.
3.	Chowgule & Co. (Hind) Ltd., Bombay.	West Germany	July, 1961	-	32-10-8	12-5-7 (37.6%)	0-10-5	45-10-8	40-0-0	As the Rhodia brand was selling at Rs. 40/-, they had to sell at Rs. 40/-, in spite of the loss, there being no buyers at any higher price.
4.	Collector of Customs, Calcutta.	France	April, 1962	-	30-12-0	-	-	-	-	The c.i.f. price was given for 275 lbs. and has been worked out for 1 kilogram.
5.	Collector of Customs, Bombay.	West Germany	26-6-62	Bulk packing	22-8-3	-	-	-	-	
		Italy	23-6-62	"	41-5-4	-	-	-	-	
		Italy	12-7-62	100 gm. packing	26-10-8	-	-	-	-	
		Denmark	18-8-62	10 gm. packing	41-10-8	-	-	-	-	

1	2	3	4	5	6	7	8	9	10	11
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(44) Tablets

1. "Hender" Pharma-  
ceutical Department,  
Grahams Trading Co.  
(India) Ltd., Bombay.

U.K. 28-3-51 Dragees- 145-15- 7 39-13- 7 1- 0- 8 186-13-10 170-0-0  
Bottle of (27.3%)  
250  
list  
price)  
143-5-4  
(Nett  
Hospital  
price )

Each dragee represents  
0.3 gm. anhydrous P.A.S.

U.K. 28-3-51 Dragees- 136- 0- 8 37- 2- 3 1- 2- 7 174- 5- 8 162- 8- 0  
Bottle of  
1000  
(27.3%)  
list  
price)  
140-13- 4  
(Nett  
Hospital  
price)

Figures were given for  
either 250 dragees or  
1000 dragees and have  
been worked out for 1  
kilogram.

Berne 10-9-51 Dragees- 101-14- 0 38- 8- 2 0- 4- 5 140-10- 7 170-0-0  
Bottle of  
250  
(37.9%)  
(Nett list  
price)  
143-5- 4  
(Nett Hos-  
pital price)

Figures were given for  
1000 tablets and have  
been worked out for 1  
kilogram.

2. Ciba Pharma Ltd.,  
Switzerland  
land  
22-3-1960 Entero- 231- 6-11 85- 5- 1 1- 1- 8 315-13- 8 637- 8- 0  
coated  
0.340.  
(37.6%)  
-do- 19-2-1961 -do- 78- 4-11 28- 8- 7 0- 8-10 108- 7- 4 228- 1- 8  
(37.6%)  
-do- 30-5-1961 -do- -do- -do- -do- -do-



1	2	3	4	5	6	7	8	9	10	11
---	---	---	---	---	---	---	---	---	----	----

## (11) Tablets

1. "Mander" Pharm- Berne 10-9-51 Dragees- 77- 6- 0 29- 4- 0 0- 3- 5 106-13- 5 129- 1-10  
centical Depart- (Switzer- Bottle of (37.6%)  
ment, Grahams land ) 250  
Trading Co.  
(India) Ltd.,  
Bombay.
- 40- 26-9-51 Dragees- 74- 2- 9 29- 0- 7 0- 0- 8 102- 4- 0 129- 6- 8  
Bottle of (37.6%)  
1000
2. Collector of West 10-7-1952 Packing 39- 0- 0  
Customs, Bombay. Germany of 100  
tablets  
of 0.6 gm-  
each
- Dragees containing  
0.586 gm. of calcium  
P.A.S. corresponding  
to 0.3 gm. of acid.  
Figures were given  
for either 250 or  
1000 dragees which  
have been worked out  
for 1 kilogram.
- 106-13- 9  
(Nett Hos-  
pital price)  
104-15- 6  
(Nett Hos-  
pital price)

# LIST OF REPORTS OF THE INDIAN TARIFF BOARD

## I. TARIFF INQUIRIES

### (A) NEW CASES

1. Sodium thiosulphate, sodium sulphite (anhydrous) and sodium bisulphite (1946).	PTB 158
2. Bichromates (1946).	PTB 157
3. Phosphates and phosphoric acid (1946).	PTB 156
4. Butter colour and aerated water powder colour (1946).	PTB 154
5. Calcium chloride (1946).	PTB 153
6. Coated abrasives (other than grinding wheels) (1946).	PTB 159
7. Hurricane lanterns (1946).	PTB 152
8. Cocoa powder and chocolate (1946).	PTB 155
9. Wood screws (1946).	PTB 97
10. Bicycles (1946).	PTB 100
11. Caustic soda and bleaching powder (1946).	PTB 88
12. Antimony (1946).	PTB 94
13. Sewing machines (1946).	PTB 101
14. Aluminium (1946).	PTB 90
15. Steel baling hoops (1946).	PTB 87
16. Preserved fruits (1946).	PTB 145
17. Non-ferrous metals (1946).	PTB 146
18. Cotton textile machinery (ring frames, spindles and spinning rings) (1947).	PTB 111
19. Rubber manufactures (1947).	PTB 110
20. Sodium and potassium metabisulphites (1947).	PTB 105
21. Alloy tool and special steel (1947).	PTB 118
22. Sodium sulphide (1947).	PTB 102
23. Electric motors (1947).	PTB 112
24. Dry battery (1947).	PTB 115
25. Plywood and teachests (1947).	PTB 113
26. Cotton and hair belting (1947).	PTB 121
27. Starch (1947).	PTB 103
28. Glucose (1947).	PTB 104
29. Chloroform, ether, sulphuric p.b. and anaesthetic and potassium permanganate (1947).	PTB 109
30. Fire hose (1947).	PTB 120
31. Steel belt lacing (1947).	PTB 119
32. Ferro-silicon (1947).	PTB 116
33. Oleic acid and stearic acid (1947).	PTB 117
34. Machine tools (1947).	PTB 114
35. Wire healds (1948).	PTB 123
36. Pickers (1948).	PTB 125

37. Motor vehicle batteries (1948).	PTB 122
38. Hydraulic brake fluid (1948).	PTB 129
39. Bobbins (1948).	PTB 128
40. Slate and slate pencils (1949).	PTB 138
41. Expanded metals (1949).	PTB 150
42. Cotton textile machinery (ring frames, spindles, spinning rings and plain looms) (1949).	PTB 167
43. Small tools (1949).	PTB 149
44. Plastics (1949).	PTB 160
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*All the above reports are available with the Manager of Publications, Civil Lines, Delhi, and the Secretary, Indian Tariff Board, Contractor Building, Nicol Road, Ballard Estate, Bombay 1.*